

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number  
**WO 2005/055021 A1**

(51) International Patent Classification<sup>7</sup>: **G06F 1/00**

(21) International Application Number:  
PCT/IB2004/004030

(22) International Filing Date: 6 December 2004 (06.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03293036.4 4 December 2003 (04.12.2003) EP

(71) Applicant (for all designated States except US): **AXALTO SA** [FR/FR]; 50, Avenue Jean Jaurès, F-92120 Montrouge (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GIRAUD, Nicolas** [FR/FR]; c/o Intellectual Property Dpt, 36-38 rue de la

Princesse, BP 45, F-78431 Louveciennes (FR). **RAIN-SARD, Stéphane** [FR/FR]; c/o Intellectual Property Dpt, 36-38 rue de la Princesse, BP 45, F-78431 Louveciennes (FR).

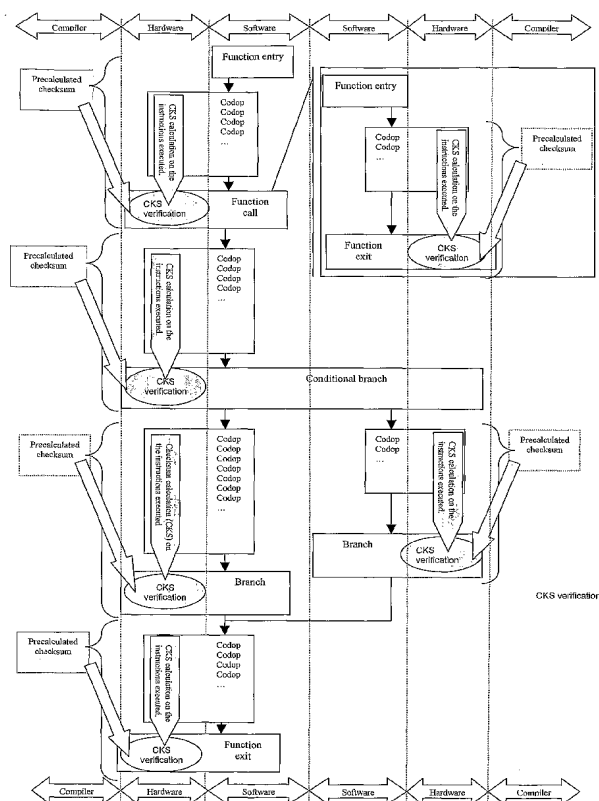
(74) Common Representative: **AXALTO SA**; P. RENAUD/Intellectual Property Dept., 36-38 rue de la Princesse, BP 45, F-78431 Louveciennes (FR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: METHOD TO SECURE THE EXECUTION OF A PROGRAM AGAINST ATTACKS BY RADIATION OR OTHER



(57) Abstract: The method according to this invention concerns a method to secure the execution of a program stored in an electronic assembly comprising information processing means and information storage means. The method consists in checking the execution of each instruction of at least a portion of said program by performing during the execution of said portion a calculation using predetermined values, depending on or associated with each of said instructions and by comparing the result obtained with a precalculated value. This invention also concerns the electronic module in which said method is implemented and the card comprising said module.

WO 2005/055021 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*